

Application No. 10/559,704

February 3, 2010

Reply to the Office Action dated November 03, 2009

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**AMENDMENTS TO THE DRAWINGS:**

The attached sheet of Drawings includes changes to Fig. 7. This sheet replaces the original sheet including Fig. 7.

Attachment: Replacement Sheet.

**REMARKS/ARGUMENTS**

Claims 23-39 and 44 are pending in this application. By this Amendment, Applicant AMENDS claims 23, 27, 33, and 38, the Title of the Invention, and the Drawings, and CANCELS claims 40-43.

Applicant affirms election of Group I, including claims 23-39 and 44. Claims 40-43 have been canceled since these claims are directed to a non-elected invention. Applicant reserves the right to file a Divisional to pursue non-elected claims 40-43.

The Drawings were objected to for failing to designate Fig. 7 as --Prior Art--. Applicant has amended Fig. 7 to properly be designated as --Prior Art--. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the objection to the Drawings.

The Examiner objected to the Title of the Invention for not being descriptive. Applicant has amended the Title of the Invention to be more indicative of the invention to which the claims are directed. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the objection to the Title of the Invention.

The Examiner objected to claim 33 for allegedly containing a minor informality. Applicant has amended claim 33 to correct the minor informality noted by the Examiner. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the objection to claim 33.

Claims 23-39 and 43 were rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite.

With respect to claim 23, the Examiner alleged that the feature of "wherein the intermediate layer is made of a material other than the aluminum oxide" is a negative limitation that renders the claim indefinite. Applicant respectfully disagrees. M.P.E.P. § 2173.05(i) states:

The current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection sought are set forth definitely, albeit negatively, the claim complies with the requirements of 35 U.S.C. 112, second paragraph. ...

A claim which recited the limitation "said homopolymer being free from the proteins, soaps, resins, and sugars present in natural Hevea rubber" in order to exclude the characteristics of the prior art product, was considered definite because each recited limitation was definite. *In re Wakefield*, 422 F.2d 897, 899, 904, 164 USPQ 636, 638, 641 (CCPA 1970). In addition, the court found that the negative limitation "incapable of forming a dye with said oxidized developing agent" was definite because the boundaries of the patent protection sought were clear. *In re Barr*, 444 F.2d 588, 170 USPQ 330 (CCPA 1971).

Applicant respectfully submits that one of ordinary skill in the art at the time of Applicant's invention would have understood that the scope of the feature of "the intermediate layer being made of a material other than aluminum oxide" to mean that the intermediate layer cannot be made of aluminum oxide because aluminum oxide results in the exact disadvantages the present invention overcomes, as discussed in, for example, paragraph [0050] of Applicant's substitute specification. Thus, a person of ordinary skill in the art at the time of the Applicant's invention would have easily and readily understand that the intermediate layer cannot made of aluminum oxide, and that the invention recited in Applicant's claim 23 would not cover a structure having an intermediate layer made of aluminum oxide. Accordingly, contrary to the Examiner's allegations, Applicant's claim 23 is not indefinite because the boundaries of patent protection sought by Applicant's claim 23 are clear. If the Examiner disagrees, the Examiner is respectfully requested to explain and provide evidence to support the allegation that a person of ordinary skill in the art would not understand that the intermediate layer cannot be made of aluminum oxide and why and how the boundaries of patent protection sought by Applicant's claim 23 are unclear.

With respect to claim 38, the Examiner noted that the feature of "an electrical/magnetic transducer, which is provided on the undercoat film of the thin-film magnetic head substrate" was already recited in claim 23, upon which claim 38 depends. Applicant has amended claim 38 to delete the feature of "an electrical/magnetic transducer, which is provided on the undercoat film of the thin-film magnetic head substrate."

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the

rejection of claims 23-39 and 43 under 35 U.S.C. § 112, second paragraph.

Claims 23, 24, 33, 38, 39, and 44 were rejected under 35 U.S.C. § 102(b) as being anticipated by Sato (GB 2391104). Claims 23-26, 33, 34, and 44 were rejected under 35 U.S.C. § 102(e) as being anticipated by Edelman et al. (U.S. 2005/0174687). Claims 32 and 35-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato. Claims 27-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato in view of Hirooka (JP 2004-127442).

Applicant respectfully traverses the rejections of claims 23-39 and 44.

Claim 23 has been amended to recite:

A thin-film magnetic head substrate comprising:  
a ceramic base with a principal surface; and  
an undercoat film, which is made of an aluminum oxide and which covers the principal surface of the ceramic base, **an electrical/magnetic transducer being provided on the undercoat film**; wherein  
the substrate further includes an intermediate layer between the principal surface of the ceramic base and the undercoat film;  
**the intermediate layer is made of a material other than the aluminum oxide and has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film**; and  
**the ceramic base is a single monolithic layer arranged to be the bottom-most layer of the thin-film magnetic head substrate.** (emphasis added)

With the unique combination and arrangement of features recited in Applicant's claim 23, including the features of "an electrical/magnetic transducer being provided on the undercoat film," "the intermediate layer ... has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film," and "the ceramic base is a single monolithic layer arranged to be the bottom-most layer of the thin-film magnetic head substrate," Applicant has been able to provide a thin-film magnetic head substrate that can be used to significantly increase the reliability of a miniaturized, high-capacity hard disk drive (see, for example, paragraph [0016] of Applicant's substitute specification).

The Examiner alleged that each of Sato and Edelman et al. teach the features recited in Applicant's claim 23. More specifically, the Examiner alleged that Sato teaches "a ceramic base (layers 1/2 see page 12, line 15 to page 12, line 4) with a principal surface (top surface of layer 2

in Fig.2)” and that Edelman et al. teaches “an undercoat film 134 [and] an electrical/magnetic transducer 116 being provided on the undercoat film” and “an intermediate layer 124 ... has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film (rear portion away from the air bearing surface 138).”

Applicant’s claim 23 recites the features of “an electrical/magnetic transducer being provided on the undercoat film” and “the intermediate layer ... has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film,” and Applicant has amended claim 23 to recite the feature of “the ceramic base is a single monolithic layer arranged to be the bottom-most layer of the thin-film magnetic head substrate.” Support for this feature is found, for example, in paragraph [0056] of Applicant’s substitute specification and Figs. 6 and 8 of Applicant’s drawings.

Neither Sato nor Edelman et al. teaches or suggests these features in combination with the rest of the features recited in Applicant’s claim 23.

Sato teaches a thin film magnetic head that includes an  $\text{Al}_2\text{O}_3$ -TIC slider 1 with a separately formed  $\text{Al}_2\text{O}_3$  undercoat 2, as discussed in lines 16-23 on page 12 and lines 1-9 on page 13 and shown in Figs. 2, 3, and 5 of Sato. After applying the undercoat 2 to the slider 1, a lower shield layer 3 is applied to the surface of the undercoat 2. In the outstanding Office Action, the Examiner alleged that the slider 1 and the undercoat 2 together formed the “ceramic base” recited in Applicant’s claim 23. However, the slider 1 and the undercoat 2 of Sato are two separate and distinct layers made of different materials. Further, the undercoat 2 of Sato is clearly not the bottommost layer of the thin film magnetic head of Sato.

Thus, Sato clearly fails to teach or suggest the feature of “the ceramic base is a single monolithic layer arranged to be the bottom-most layer of the thin-film magnetic head substrate” as recited in Applicant’s claim 23.

Edelman et al. teaches a transducer head that includes a substrate 118, an insulator 134, a reader 116, and a writer coil 124, as shown in Fig. 5 of Edelman et al. In the outstanding Office Action, the Examiner alleged that the substrate 118, the insulator 134, and the writer coil 124 of Edelman et al., corresponded to the “ceramic base,” the “undercoat film,” and the

“intermediate layer,” respectively, recited in Applicant’s claim 23. However, contrary to the Examiner’s allegations, the writer coil 124 of Edelman et al. is not patterned to make a portion of the principal surface of the substrate 118 contact the insulator 134 of Edelman et al. Rather, the writer coil 124 is embedded in the insulator 134 of Edelman et al. such that the writer coil 124 bears no relation to which portion of the insulator 134 contacts the substrate 118. In other words, if the entire writer coil 124 were removed, the insulator 134 of Edelman et al. would still come into contact with the same portions on the substrate 118.

The Examiner also alleged that the reader 116 of Edelman et al. corresponds to the “electrical/magnetic transducer” recited in Applicant’s claim 23. However, the reader 116 is embedded within the insulator 134 such that the reader 116 does not come into contact with any of the outer surfaces of the insulator 134 of Edelman et al. Accordingly, because the reader 116 is disposed entirely within the insulator 134 of Edelman et al., no portion of the reader 116 is disposed “on” a surface of the insulator 134 of Edelman et al.

Thus, Edelman et al. clearly fails to teach or suggest the features of “an electrical/magnetic transducer being provided on the undercoat film” and “the intermediate layer ... has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film” as recited in Applicant’s claim 23.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 23 under 35 U.S.C. § 102(b) as being anticipated by Sato. Applicant also respectfully requests reconsideration and withdrawal the rejection of claim 23 under 35 U.S.C. § 102(e) as being anticipated by Edelman et al.

The Examiner relied upon Hirooka et al. to allegedly cure the deficiencies of Sato. However, Hirooka et al. clearly fails to teach or suggest the features of “an electrical/magnetic transducer being provided on the undercoat film,” “the intermediate layer ... has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film,” and “the ceramic base is a single monolithic layer arranged to be the bottom-most layer of the thin-film magnetic head substrate” as recited in Applicant’s claim 23. Thus, Applicant respectfully submits that Hirooka et al. fails to cure the deficiencies of Sato described above.

Accordingly, Applicant respectfully submits that Sato, Edelman et al. and Hirooka et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in Applicant's claim 23.

In view of the foregoing amendments and remarks, Applicant respectfully submits that claim 23 is allowable. Claims 24-39 and 44 depend upon claim 23, and are therefore allowable for at least the reasons that claim 23 is allowable.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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